

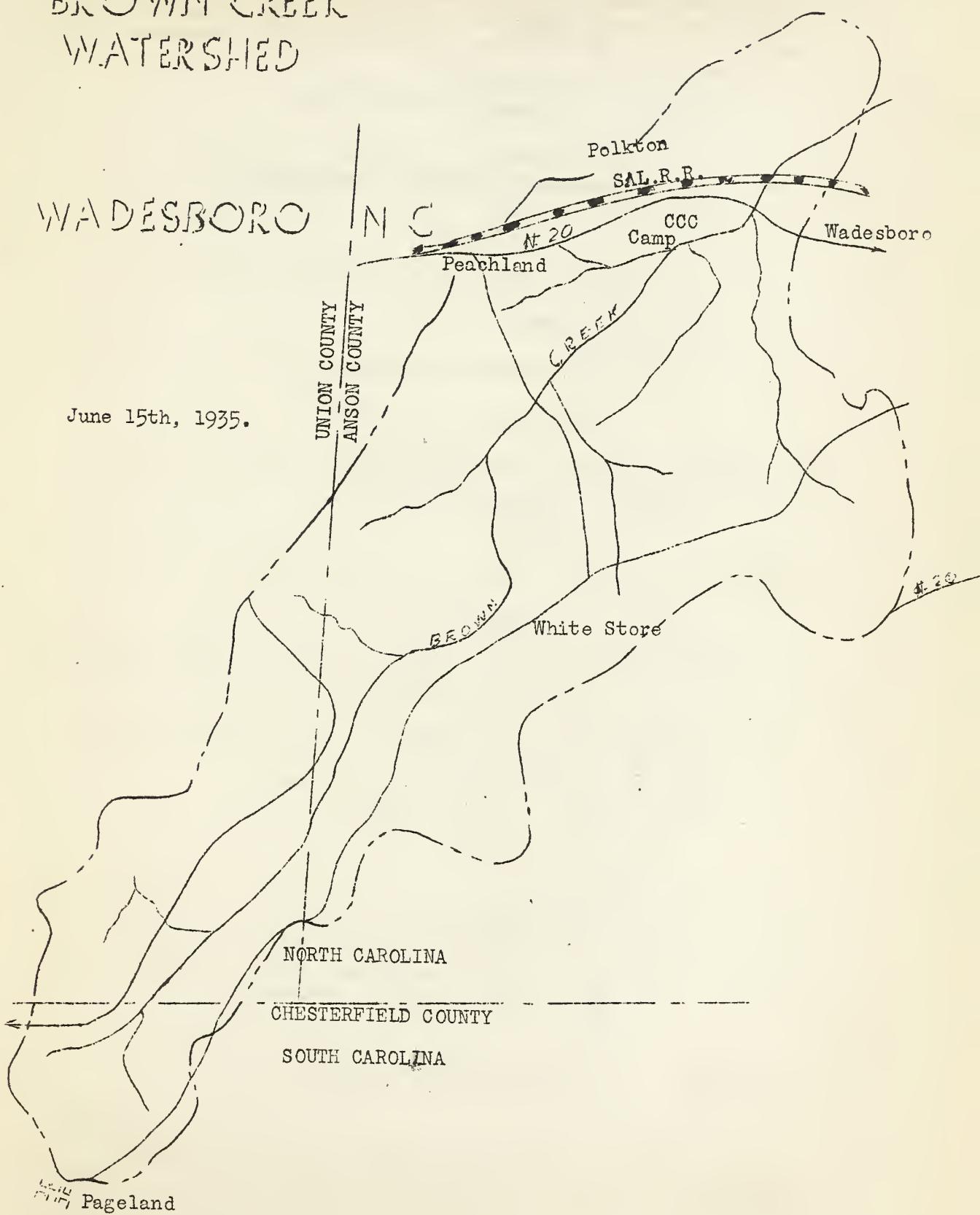
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THE  
BROWN CREEK  
WATERSHED

VOL. I NO. 12



THE BROWN CREEK WATERSHED is being put out by the Soil Conservation Staff once each month, mainly to assist in telling what we are doing and maintain a spirit of good fellowship with the citizens of the community we endeavor to serve.

#### EXECUTIVE

W. A. Murray, Jr., Clerk.  
Miss Daisy Lee Hart, Stenographer.

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H. M. Stott, Ass't. Erosion Specialist.

#### SOILS

R. C. Pleasants, Ass't. Soil Expert.

#### AGRICULTURAL ENGINEERING

Donald Christy, Ass't Agricultural Engineer.

#### AGRONOMY

A. A. Cone, Ass't. Agronomist.  
J. E. Michael, Ass't. Agronomist.

#### FORESTRY

H. P. Hagge, Forester.  
L. B. Hairr, Ass't Agricultural Aide.

Directing personnel for the ECW Camp at Polkton are as follows:

W. B. McManus, Superintendent.  
R. B. Stamey, Engineer.  
S. W. Meyers, Foreman.  
S. J. Crocker      "  
C. S. Faw      "  
C. A. Neal      "  
C. W. Thompson      "  
M. L. Ross      "  
J. F. Martin      "  
B. W. Ingram, Mechanic.  
W. L. Teal, Clerk-Stenographer.

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Since the last issue of the Watershed we have been notified that the name "Soil Erosion Service" has been changed to "Soil Conservation Service". This change is in name only and, in no way affects the work or purpose of our project.

Much has been said about the value of a good crop rotation and its bearing on soil fertility and the extent to which the practice will aid in controlling erosion. Ideal tillage conditions are realized when a satisfactory rotation is followed by the farmer.

The average individual thinks largely of soil fertility as being the only important benefit derived from the practice of rotating crops. Should a farmer adopt a rotation similar to the following: cotton, vetch, corn, beans, grain and lespedeza which is a three year rotation, he would be growing six crops in his fields over a three year period; two of the crops may be classified as supply crops, three soil improvement crops and one (Cotton) a cash crop. Such a practice is now being carried out by farmers in the Brown Creek Area in an effort to combat the menace of erosion. It is safe to say that all three of the soil improvement crops would not be used as such, but could be utilized as hay and the manure returned to the fields; a very small amount of the actual fertility in a ton of hay is destroyed in the digestive tract of an animal, but is thrown off and the greatest loss comes through leaching and different wasteful methods of handling.

Getting back to the subject of crop rotation, lets analyze the suggested rotation for a three-year period and see what the results are. It has been found that on an average field which will produce one-half a bale of cotton per acre that the product removed will carry with it or remove from the soil sixteen pounds of nitrogen. Vetch, which follows cotton, will add fifty-two pounds of nitrogen per acre if one ton is turned under. The vetch is turned to corn and the same field will produce about twenty-five bushels per acre and will take away twenty-eight pounds of nitrogen. Soybeans are planted in the corn, and if one ton per acre is turned under, fifty-one pounds of nitrogen will be added to the soil. Oats are sowed after the corn and beans, and twenty-five bushels of oats will remove approximately twenty-four pounds of nitrogen. Lespedeza is sowed on the oats, and if one ton of lespedeza is produced and turned into the soil, thirty-eight pounds of nitrogen will be added. Now the three years have passed and where do we stand as far as nitrogen is concerned? And this element, by the way, is the most expensive plant food element farmers have to buy, and the limiting factor in crop production in a great many instances.

To summarize, here is what we have - add up the cotton, corn and oat nitrogen which has been taken out and we have sixty-eight pounds. Add up the vetch, soybeans and lespedeza nitrogen which has been added and we have one hundred and forty-one pounds. The difference here is seventy-three pounds more nitrogen in the soil than when the rotation was begun three years ago. You can answer the question whether this practice will improve or deplete land.

- A. A. Cone,  
Assistant Agronomist.

The above comparisons give us a good idea of what may be done to maintain and increase the nitrogen supply of the soil. However this is

only one of the advantages of following such a rotation. In the first place such a rotation makes a much better balanced farming system in several ways. Labor, power, equipment and land are all utilized much more completely and efficiently than when only cotton and corn are grown. Additional sources of income are provided in the form of legume seeds and hay which may be converted into cash to offset the uncertainty of cotton prices. Such a rotation provides more feed for livestock which gives other sources of income.

Another major advantage of such a rotation is that it adds large quantities of organic matter which improves soil conditions in many ways. It greatly increases the water holding capacity of the soil, thus enabling crops to withstand droughts. Holding this water in the soil saves much valuable plant food that would otherwise be washed out. The addition of organic matter causes the soil to warm up and dry out quicker in spring. All these conditions encourage the increased growth of beneficial bacteria in the soil which are so necessary to plant growth. The structure of the soil is improved, thus permitting better root penetration and easier working conditions.

Probably the most important result of following such a rotation is that soil erosion is reduced to a minimum. All of the other benefits to the soil might possibly be secured by the addition of commercial fertilizers and barn yard manure. However, there is no other method that will control erosion as effectively as the use of close growing crops and winter cover crops in the rotation. It has been stated many times that, on the average, erosion removes twenty-one times as much plant food annually as is removed by crops. It is therefore evident that erosion control is of vast importance. A soil made poor by overcropping may be restored by the addition of plant food but when the top soil is carried away by erosion it is gone for ever.

- H. M. Stott,  
Assistant Erosion Specialist.

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SOILS DEPARTMENT

- R. C. Pleasants -

DOMINANT SOILS IN BROWN CREEK WATERSHED AREA

The White Store Soils

DESCRIPTION: The soils of this series are distinctly different from any of the other soils of the Triassic Belt. The surface soils are dull red in case of the heavy types, and grayish in the sandy types; while the subsoils consist of red or chocolate red plastic clay, mottled with various colors in the lower portion of the subsoil. The subsoil when dry is tough and brittle and will show cracking; it resembles that of the Iredell series to a marked degree. In this area the White Store series is represented by four different types, which range from a clay loam to a sandy loam. These are clay loam, fine sandy loam, gravelly sandy loam and a fine sandy loam mixed phase. The most typical areas of the fine sandy loam type consists of a grayish to a pale yellowish brown fine sandy loam, becoming yellowish at a depth of 3 to 5 inches and overlying a brownish red, stiff clay at 5 to 10 inches. The subsoil is sticky and plastic in the lower part and in places is mottled. The White Store clay loam consists of a brownish red to red clay loam, passing at 2 to 4

inches into a dull red or chocolate colored, stiff, heavy clay, which becomes plastic and sticky in the lower part. In the gravelly sandy loam type there is an abundance of rounded and angular quartz gravel in the surface soil, the subsoil being the same as for the clay loam type. The mixed phase fine sandy loam consists of patches of sandy loam and clay loam which are so small that a separation is not possible.

DERIVATION: The White Store soil is a residual soil formed from the disintegration of the Triassic sandstone and shale.

OCCURRENCE: This soil occurs in scattered areas throughout the Triassic belt, but most of the White Store soil is found west of Brown Creek in the vicinity of White Store.

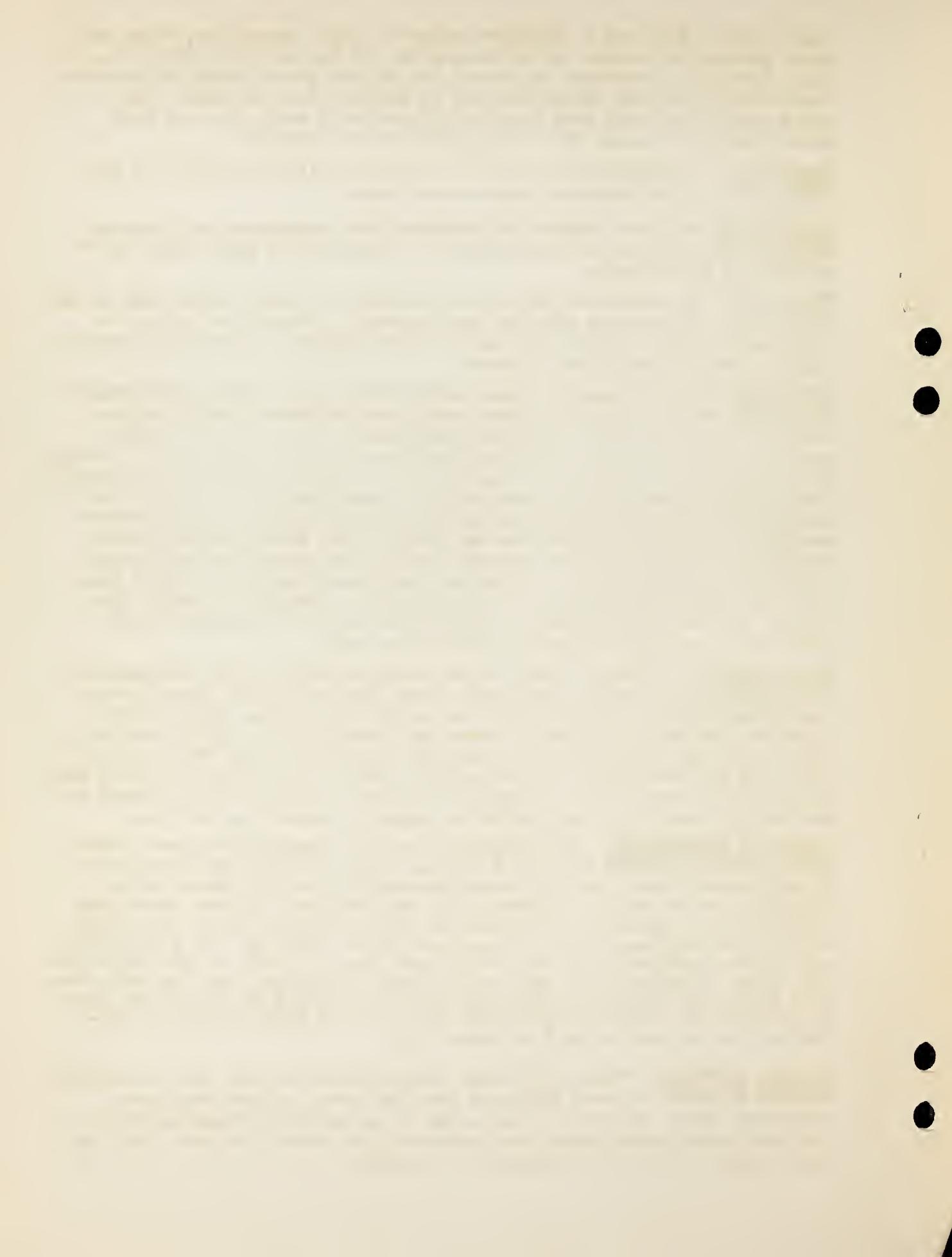
TOPOGRAPHY: Is undulating and rolling to rough and broken along some of the streams and slopes where gullying has occurred. The surface drainage is good, but the dense and plastic nature of the subsoil is obviously unfavorable for rapid percolation of water.

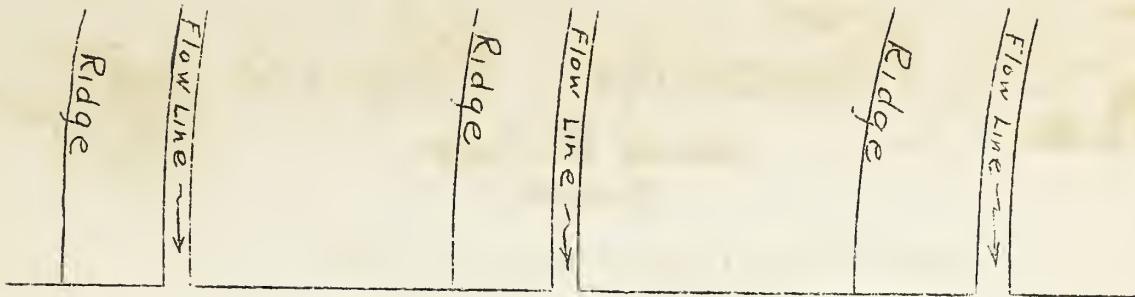
FERTILITY: Chemical analyses show that the White Store soils contain more plant food nutrients than any other soil from the Triassic belt, but on account of the undesirable physical conditions, it ranks low as a crop producer. Moderate applications of fertilizers are necessary for all crops. The use of lime on this soil has proven to be beneficial for crop production. The White Store soils, like other soils of this area, are greatly in need of more organic matter. This can be accomplished by leaving more vegetative material on the soil to decay and by turning under green manuring crops. The liberal incorporation of vegetable matter and manure, and deep preparation of the seed bed have a much more permanent beneficial effect upon the soil than the application of commercial fertilizers. It should also be kept in mind that a method of making erosion less destructive is to increase the supply of organic matter in the soil.

CROP ADAPTATION: Cotton, which is the principal crop in this area produces good yields on the White Store soils. Corn and small grain do well where exceptionally good farming methods are practiced. In the forest, broom sedge and the old-field pine are very much adapted to the White Store series by the thick growth of broom sedge associated with the old field pine. Allowing the growth of this broom sedge and pines to remain undisturbed in the woods is one of the most efficient means of controlling erosion.

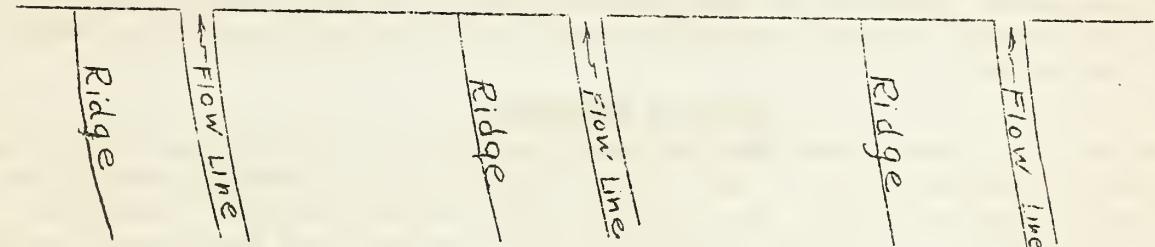
DEGREE OF EROSION: The White Store series is probably the most susceptible soil to erosion in North Carolina. This soil with its unfavorable plastic subsoil has a very low water absorptive capacity, which renders favorable conditions for an increase in soil erosion. Another reason why this soil is so erosive is the peculiar physical properties of the surface soil in the clay loam type. The surface soil on this type has a tendency, upon drying between rains, to have an inch or so of loose or friable soil on top, which is underlain by this plastic clay. Naturally, when the rain comes this loose soil is washed away. This easy act of soil erosion on this type is repeated at every rain, providing that the time between rains is sufficient for the surface soil to become dry.

CONTROL MEASURES: Owing to the high susceptibility of this soil to erosion, control measures are more difficult than for other soils of this area. Vegetative means of control, such as broad and narrow strip-cropping, rotations, winter cover crops, and contour tillage should be used. Only the sandy types of this series should be terraced.



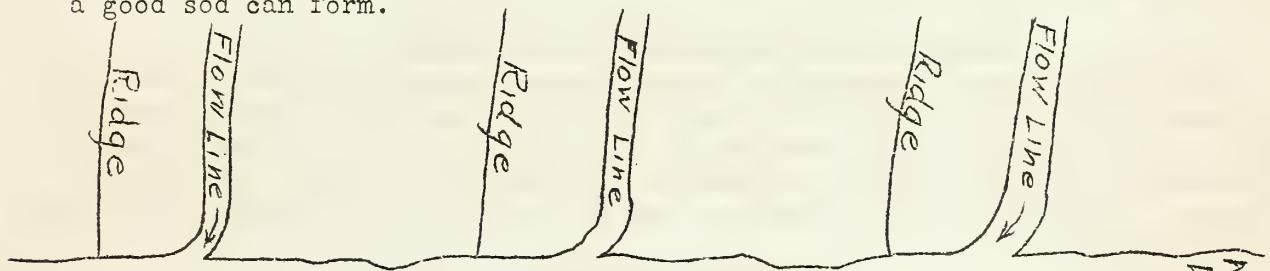


## BURLAP PAVING

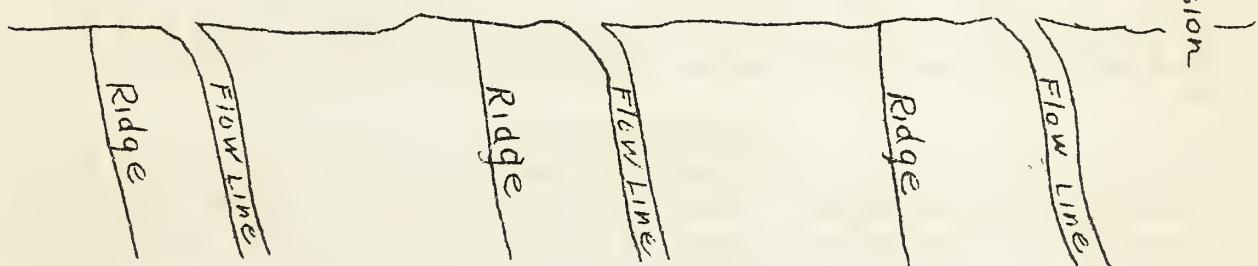


### Spreader Board.

What is known as the spreader board type outlet ditch is a ditch so designed that it will spread the water evenly over a broad space. In this way the velocity of the water is slowed down to the point that it will not wash out a sod grass. The majority of outlet ditches of this type average about 26 inches deep and from 3 to 20 feet in width, depending upon the drainage area. The bottoms and sides of the ditches are planted with a year round mixture of grass and then covered with a coarse burlap. This burlap firmly stapled down protects the grass until a good sod can form.



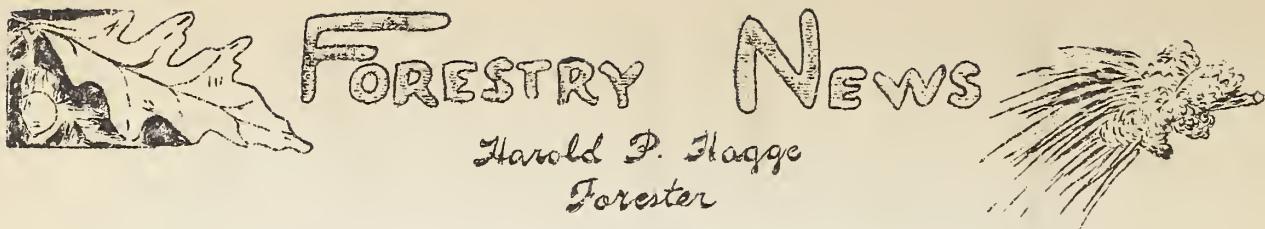
## MEADOW STRIP



### The Meadow Strip.

The meadow strip is used in connection with natural depressions or drains in the field. This depression is planted on a meadow sod, thus forming a natural outlet channel for a terrace system.

Both the spreader board and meadow strip type of outlet ditches, afford a good supply of hay each year for the farmer.



# FORESTRY NEWS

Harold P. Haggé  
Forester

## SUMMER FORESTRY WORK ON BROWN CREEK AREA

The summer work will be distributed on various activities such as woodland management, timber stand improvement, timber cruising, making future planting surveys, seedling production, seed collection and educational work among our cooperators.

### Woodland Management

We want to promote farm woodland management for all forest land owners interested in the proper use of the axe and saw, selective cutting, proper logging and protection of land at all times from fire and erosion. Intensive management, such as excluding grazing from the woodland and improvement cutting will usually double the timber yield per acre. Erosion is absent and streams run clear in a well managed woodland.

### Timber Cruising

In forestry, as in any other successful enterprise, an inventory must be made of the resources. The Forestry Department has started a timber cruise in several woodlands in the area. The data we compile from the survey will be of vital interest to all forest land owners and if they are interested in this phase of our program they should get in touch with our field representative or call at the office.

### Timber Stand Improvement Demonstrations

Our Farm Woodland Improvement Cutting Demonstration Plots are to serve as illustrations in the treatment of woodlands to produce the greatest amount of the most valuable forest products in the shortest period of time. Improvement cutting should serve a dual purpose, (1) improve the stand for future timber, (2) at the same time produce forest products such as fence posts, poles and fuel wood.

### Forest Tree Planting

Plans for planting fields retired from cultivation will continue throughout the summer. The fields will be planted to species and mixtures best suited to soil type, degree of erosion, and other limiting factors, as well as the farmers timber needs. Steep slopes and land severely eroded will be planted to trees of commercial value. Planting season will begin late in October.

### Seed Collection

At this time of the year and during the summer and fall the Forestry Department will be in search of a large quantities of tree and shrub seeds. The farmers on the Brown Creek Watershed will materially help us if they will report sources of any large quantities of shrub and tree seeds. The seeds are gathered, treated or extracted if necessary and sent to state and federal nurseries. In return for the seeds the nurseries send us one and two year old seedlings for field and gully planting.

### Education and Cooperation

The realization of a well rounded program of land use depends upon the

application of forestry principles. It is the desire of the Forestry Department to help solve the woodland problems with the cooperation of the land owners whom we are here to serve. We plan to prepare a list of the trees to plant for various purposes including homestead and highway beautification, and also notes on care of trees. This information should be of value to you and you may secure a copy if you ask for it at the Soil Conservation Service Office.

#### \*BLACK LOCUST A VALUABLE TREE



Many farmers in the area ask questions about the black locust seedlings that the Forestry Department planted on the gullied areas and on badly eroded fields. Few farmers in the watershed are familiar with the value of the black locust.

The Forestry Department this past spring planted 255,214 black locusts. This species of tree was not found on the Brown Creek watershed prior to the past planting season. The tree is often confused with the honey locust or thorn tree. The honey locust is not the equal of the black locust in strength or durability. It has pods six or eight inches long during the midsummer and sometimes has thorns even longer.

It has a mass of roots near the surface and will sprout badly even on the level ground. Black locust has the short, narrow pod and short thorns. Probably no forest tree is being planted so extensively on farm waste lands in the United States for erosion control. It is a legume which in part accounts for its power of growth in lean soils and makes it actually a soil enricher. Black locust has a strong spreading root system, and growing rapidly forms a complete ground cover in a few years where agencies of erosion are active.

Few trees rank with black locust as a tree producing wood that is durable when used in the ground. Black locust in ten to fifteen years will make desirable fence posts. In some cases black locust will produce a three post tree in eighteen to twenty years. The posts are usually straight, easy to handle and of such a nature that staples will readily stay in them.

Black locust plantations usually have 1,200 to 2,000 trees to an acre. If one tree produces only two fence post trees in eighteen to twenty years and the market price is fifteen cents per post the plantation could be valued at \$350.00 to \$500.00 per acre. This should be considered a good revenue for twenty years use of any type of farming land. However, the locust planted on the Brown Creek Area were planted on lands that were gullied and worthless for any type of cultivation or grazing.

At the present time black locust fence posts sell for 25 to 40 cents a piece in many of the dairy farming regions. Besides fence posts, black locust is used for grape stakes, telephone poles, insulator pins, tree nails, wagon hubs, mine timbers and railroad ties. In several localities locust timber sold for as high as \$15.00 per cord, so there is little danger of a surplus of a valuable farm wood with so extensive a market. The tree under ordinary growing conditions reaches a height of forty to eighty feet and a diameter of one to two feet in twenty to forty years.

\* For more information on black locust see: U.S.D.A. Circular Number 131, "Utilization of Black Locust".

DEPARTMENT OF WILDLIFE CONSERVATION

Undoubtedly, everyone at all closely connected with the Soil Conservation Service has pondered over the question concerning the place of wildlife conservation in the Soil Conservation Service. It is entirely possible to control erosion without considering this phase of the work. The justification of it is based on the proper use of land, and the taking advantage of soil erosion control operations to secure nearer maximum values for the farmer. Certain structures, badly eroded areas and strategic points need protection. It is our purpose to take advantage of these developments in improving conditions for desirable forms of wildlife. Vegetational operations of the Soil Conservation Service can be made to serve these purposes and thereby become desirable from the farmer's standpoint, or they can become a curse to the farmers by spreading into his fields and serving as suitable places for snakes, rodent pests and predators. Fortunately the species which are most satisfactory for the farmer are most satisfactory for wild life purposes.

There were definite reasons for hoping that wild life conservation might be seriously considered by the Soil Conservation Service. It is the only federal agency actively cooperating with sufficient agricultural and semi-agricultural lands to make a nation-wide agricultural wildlife program possible. We are instituting farm practices which, if properly managed, can be made to greatly improve conditions for wildlife.

Undoubtedly everyone in the Service can see the need for more scientific and properly organized farming practices and is anxious to blame farmers for their past activities in ruining our soils; nearly everyone deplores the past practices of lumbermen and is anxious to have sound forestry practices instituted. Yet there is too much of a tendency to allow the old scheme of things to continue in wild life conservation. It is true that this is comparatively a new field. Is it going to be necessary to let this work take its natural downhill course as have agriculture, forestry and other natural resource developments, before the proper importance and need for scientific management can be realized? We need a broad outlook in regard to wildlife conservation, as well as with the other functions of the Service.

Several agencies have realized the possibilities of using wildlife developments as an aid to soil conservation. Herbert L. Stoddard, the best known authority on wildlife in America, in his book, "The Bobwhite Quail, Its habits, Preservation and Increase," says: "Curiously erosion which is a serious enemy of the farmer over most of the Piedmont, is indirectly becoming an increasingly important ally of the quail in its fight for existence. To check erosion as gullies and "washes" develop, brushy thickets are allowed to grow up around them, and these offer ideal cover for quail. If additional areas also are planted around the thickets with the erosion-resisting Japan clover (*lospedozza*), both food supply and shelter will be afforded for the game birds. Such measures may be profitably adopted wherever destructive erosion starts. Terracing the land may be made to favor the quail if cover is permitted to grow on the terraces."

In the May issue of the "Okatibbee Creek Watershed" we find the following: "Good land practices are good game practices. Forestry, soil and game preservation are all three needed and will come nearer restoring the land to its people, which after all, cannot produce happiness unless there is a pleasing environment in which to live.

The same methods and devices used to restore and protect game environment are practically the same required to stop erosion and save the soil."

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#### WHAT THE CCC BOYS ARE DOING

In the past we have devoted the major portion of our space to the field work which we are doing in the Brown Creek Area. Notwithstanding the fact that we have been doing a very useful and educational work, so far as our actual field operations are concerned, there is an even more important phase of our work to be considered: That of Man Building.

Quite recently the attention to this part of our program has been given first consideration on the part of the administrative heads in Washington, D. C., and added effort is being made to build up a most comprehensive program affecting the building of Body, Mind and Soul of the Enrollee.

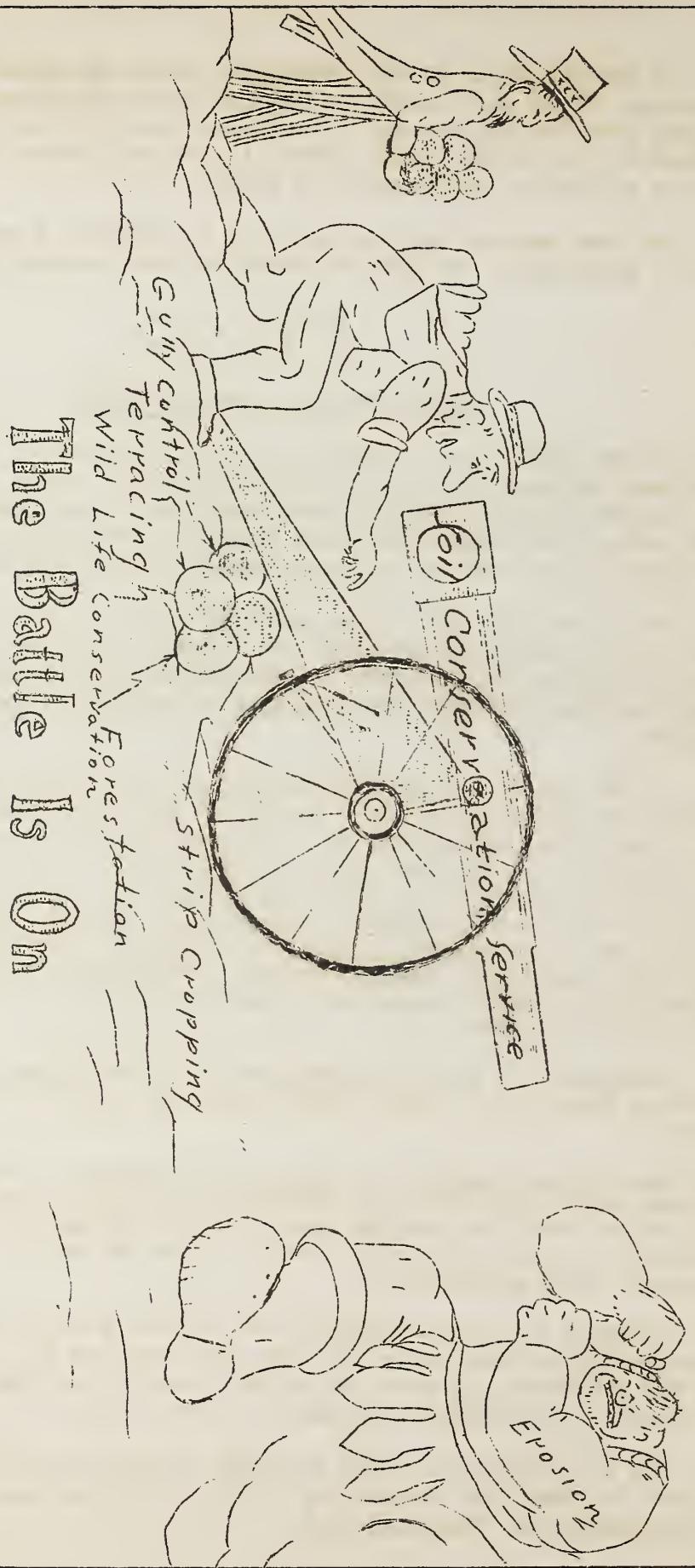
In the survey of the work being done by our Camp along these lines it develops that we are already a step ahead in this worthy endeavor. We find that seventy-nine percent of our enrollees are taking one or more courses in our Educational Program. In addition to our regularly employed Educational Director, Mr. S. E. Matthews, we have the services of other technical men at our disposal in directing the program. Right now the following subjects are being taught: Reading and Writing, Arithmetic, Spelling, First Aid, Journalism, Typing, General Woodworking, Jig Saw Operation, Soil Erosion, Radio Engineering, Photography, Saw Filing, Cooking, Agriculture, Stock Raising, Boxing.

Each week the boys are permitted to go to moving picture shows at Monroe or Wadesboro. Every Sunday trucks are used in transporting them to Church.

Our library consists of 315 books, which are held here for a period of three months when they are exchanged for an equal number of other books. Thus, in the run of a year the boys have the choice of 1,260 books to read. In addition to this we receive something like 30 monthly magazines as well as several daily newspapers.

Contrary to general opinion, the average educational rating is considerably higher than you would find in a group of 200 young men gathered from any community. A check up on this reveals the fact that the average schooling of our enrollee personnel is seven years.

You are invited to visit our Camp on Sunday or some Holiday when the boys are "at Home" and making use of the facilities that are afforded them in this program of "Man Building".



With the cooperation of our Government and Land Owners, in demonstrating and practicing the proper methods of soil conservation, this war against erosion will bring a priceless victory. It must, however, be a war without end; no armistice can be declared, as the only permanent security lies in the constant safeguarding of our soil by preparing and maintaining adequate defenses against the persistent attacks of this vicious enemy.